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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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5. Proj./Prog./Dept./Div.: 241-T-103/Waste Management/PP&C/Analytical Services	6. Cog. Engr.: Ruth A. Esch	7. Purchase Order No.: NA

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1	WHC-SD-WM-DP-187	NA	0	45-Day Safety Screening Results and Final Report for Tank 241-T-103, Grab Samples 3T-96-1, 3T-96-2 & 3T-96-FB	Q	2	1	1

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
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2	1	Cog.Eng. R. A. Esch		6/4/96							
2	1	Cog. Mgr. G. Kristofzski		6/4/96							
2	1	QA		6/4/96							
2	1	Peer Review		6-5-96							
2	1	Production Planning & Control A. D. Rice		6-4-96							

18.	19.	20.	21. DOE APPROVAL (if required)
L. R. Webb for Signature of EDT Originator Date 6-4-96	Authorized Representative for Receiving Organization Date	G. Kristofzski 6/4/96 Cognizant Manager Date	Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

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BD-7400-172-1

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WHC-SD-WM-DP-187, Rev. 0

"45-DAY SAFETY SCREENING RESULTS AND FINAL REPORT FOR TANK 241-T-103, GRAB SAMPLES 3T-96-1, 3T-96-2, AND 3T-96-FB"

Ruth A. Esch
Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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Abstract: N/A

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WHC-SD-WM-DP-187, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREENING RESULTS AND FINAL REPORT FOR TANK 241-T-103, GRAB SAMPLES 3T-96-1, 3T-96-2 AND 3T-96-FB

PROJECT COORDINATOR: RUTH A. ESCH

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

Westinghouse Hanford Company
Box 1970
Richland, Washington

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NARRATIVE

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222-S ANALYTICAL SERVICES

45 DAY SAFETY SCREENING RESULTS AND FINAL REPORT FOR TANK 241-T-103 GRAB SAMPLES 3T-96-1, 3T-96-2 AND 3T-96-FB

This document is the 45 Day Safety Screening and Final Report for the grab samples taken from Tank 241-T-103 risers 2 on May 1, 1996. Two grab samples (3T-96-1 and 3T-96-2) and one field blank (3T-96-FB) were received and subsampled at the 222-S Laboratory. Analyses were performed only on the liquid portion of the samples in accordance with the Tank Sampling and Analysis Plan (TSAP) for this tank (Winkleman, 1996) and the Safety Screening Data Quality Objective (DQO) (Dukelow, et al. 1995). There were insufficient solids to collect for analysis.

This sampling event did not satisfy the requirements in the TSAP and the Safety Screening DQO to collect two vertical profiles, one from each of two risers. Therefore, an additional sampling event has been scheduled. The second sampling will be performed by the auger method. The safety issues can not be assessed using the data from the current sampling event.

The dome space below the riser was sampled and analyzed for the presence of flammable gases prior to the collection of the grab samples. Based on the results of vapor monitoring, the vapor in Tank T-103 dome space is far below the lower flammability limits (LFL) stated in the TSAP.

The notification limits for differential scanning calorimetry (DSC) and total alpha (AT) analyses were not exceeded. The accuracy and precision criteria were satisfied for both of the samples analyzed for safety screening analytes.

Appearance and Sample Handling

The waste level in this tank is very low. Therefore, an attempt was made to collect samples at the bottom of the tank, tipping the bottle on its side, if necessary. Two samples were obtained from riser 2. Two attempts were made to collect samples from riser 7, with no success. The samples from riser 2 were received at the 222-S Laboratory on May 3, 1996. Table 1 summarizes the appearance information.

Upon visual inspection in the laboratory it was noted that the two samples that were received had very little liquid and insufficient solids to collect for analysis. The tank coordinator was contacted and a decision was made to subsample and perform the analyses on the supernate portion only.

Attachment 1 is provided as a cross-reference for relating the tank farm customer identification numbers with the 222-S Laboratory sample numbers. Sampling depths were obtained from the field sampling work package. The subsamples generated in the laboratory for analysis are identified in these diagrams with their sources shown.

Table 1: Appearance Information for Tank 241-T-103 Grab Samples

Sample Number	Riser	Lab ID	Date Sampled	Date Received	Sampling Depth*	% Settled Solids	Sample Description
3T-96-1	2	S96T002643	5/1/96	5/3/96	447 in.	Trace	~25 mL clear yellow liquid; no organic layer; trace of black solids that looked like short pieces of string, or clothing lint (picture was provided to tank coordinator)
3T-96-2	2	S96T002644	5/1/96	5/3/96	450 in.	Trace	~ 30 mL yellow liquid (clear after suspended solids settled); no organic layer; fine dusting of red/brown colored solids (picture was provided to tank coordinator)
3T-96-FB	2	S96T002645	5/1/96	5/3/96	240 in.	None	Clear colorless liquid; no organic layer; no solids

* - Sampling depth is the distance from the top of the riser to the mouth of the sample bottle.

Analytical Results

The data summary table (Table 2) included in this report compiles the safety screening analytical results and applicable action limits associated with each subsample from the samples submitted.

The data for the dome space vapor monitoring is included with the raw data.

Differential Scanning Calorimetry (DSC)

The DSC results for the two samples submitted did not exceed the notification limit of 480 joules/g on a dry weight basis. No exotherms were observed. No secondary analyses are required.

It was noted that both samples had a sharp endotherm that occurred after the water evaporation (around 100 °C). The endotherm was indicative of the evaporation of an organic, but there was no evidence of an organic in the thermogram for the % moisture analysis. A better possibility is the melting of a pure compound, indicated by the sharpness of the endotherm. Since the samples were not filtered before analysis, there may have been a trace of solids that may have a component that would melt at this temperature. A melting solid would not have a corresponding change on the % moisture thermogram.

The standard recovery and relative percent difference (RPD) between sample and duplicate results were within the limits specified in the TSAP.

Thermogravimetric Analysis (TGA)

The results for the TGA analysis show that both samples had more than 67 % moisture.

The standard recovery and RPD results were the limits specified in the TSAP.

Total Alpha (AT)

For the AT analysis, the results for the two samples were three orders of magnitude below the notification limit of 61.5μCi/mL. No secondary analyses are required.

The standard and spike recoveries and RPD results were within the limits specified in the TSAP.

The Upper Confidence Limit was calculated for each sample and are presented below in Table 3. This limit was calculated with a confidence level of 0.95 and degrees of freedom of n-1 by the formula in equation (1).

$$\bar{x} + (t\text{-}value) * \frac{s}{\sqrt{n}} \qquad (1)$$

where:

$\bar{x}$ = mean,

t-value = 6.314 for two results,

s = standard deviation,

n = number of results.

The upper limit for the 95% confidence interval falls three orders of magnitude below the action limit of 61.5μCi/mL. Since the results for the field blank were less than the detection limit, the calculations for mean, standard deviation, and 95% Upper Limit (mean) are not applicable. These results are marked in the table as "n/a".

Table 3: Comparison of Total Alpha Results at a 95% Confidence Level

Customer ID	Segment Portion	LabCore ID	Sample Result	Duplicate Result	Mean	Standard Deviation	95% Upper Limit (Mean)
			µCi/mL	µCi/mL	µCi/mL		µCi/mL
3T-96-1	Supernate	S96T002862	1.80E-02	1.95E-02	1.88E-02	1.06E-03	2.35E-02
3T-96-2	Supernate	S96T002863	2.08E-02	2.16E-02	2.12E-02	5.66E-04	2.37E-02
3T-96-FB	Supernate	S96T002645	<6.58E-7	<6.42E-7	n/a	n/a	n/a

Procedures

Table 4 lists the analytical procedures used for performing the safety screening analyses. Abbreviations for analyses are defined in the table notes.

Table 4: Analytical Procedures

Analysis	Sample Portion	Preparation Procedure +	Analysis Procedure
DSC	Supernate & FB	N/A	LA-514-114 Rev. C-1
TGA	Supernate & FB	N/A	LA-514-114 Rev. C-1
AT	Supernate & FB	N/A	LA-508-101 Rev. D-2

Abbreviations:
FB = field blank
N/A = not applicable (these are direct samples)
DSC = differential scanning calorimetry
TGA = thermogravimetric analysis
AT = total alpha

References

Winkelman, W. D., 1996, *Tank 241-T-103 (Grab) Sampling and Analysis Plan*, WHC-SD-WM-TSAP-092, Rev. 0, Westinghouse Hanford Company, Richland, WA 99352.

Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Meacham, 1995, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, WA 99352.

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ATTACHMENT 1

T-103 GRAB SAMPLE BREAKDOWN

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Attachment 1
T-103 GRAB SAMPLE BREAKDOWN
Riser 2

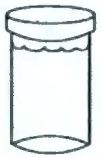
447 in.
3T-96-1
S96T002643

Archive after subsampling

S96T002862

DSC
TGA
AT

450 in.
3T-96-2
S96T002644

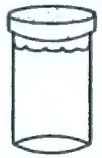


Archive after subsampling

S96T002863

DSC
TGA
AT

Field Blank
3T-96-FB
S96T002645



DSC
TGA
AT
Archive

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SAMPLE DATA SUMMARY

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03-jun-1996 13:44:09
A-0002-1

Table 2: 45 Day and Final Results for Tank 241-T-103
T-103 GRAB

RISER: 2
SEGMENT #: 3T-96-1

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T002862			% Water by TGA on Perkin Elmer	%	99.05	n/a	67.02	7.285e1	6.994e1	8.34	n/a	n/a	n/a
S96T002862			DSC Exotherm on Perkin Elmer	Joules/g	101.1	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T002862			Alpha in Liquid Samples	uCi/mL	120.3	<4.810e-4	1.80e-02	1.950e-2	1.870e-2	8.00	108.1	1.000e-3	1.37E+01

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03-Jun-1996 13:44:31
A-0002-1

Table 2: 45 Day and Final Results for Tank 241-T-103
T-103 GRAB

RISER: 2
SEGMENT #: 3T-96-2

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T002863			% Water by TGA on Perkin Elmer	%	99.05	n/a	73.26	7.327e1	7.327e1	0.01	n/a	n/a	n/a
S96T002863			DSC Exotherm on Perkin Elmer	Joules/g	101.1	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T002863			Alpha in Liquid Samples	uCi/mL	120.3	<4.810e-4	2.08e-02	2.160e-2	2.120e-2	3.77	n/a	1.000e-3	1.25E+01

03-Jun-1996 13:44:45
A-0002-1

Table 2: 45 Day and Final Results for Tank 241-T-103
T-103 GRAB

RISER: 2
SEGMENT #: 3T-96-FB

SEGMENT PORTION: Field Blank

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T002645			% Water by TGA on Perkin Elmer	%	99.64	n/a	99.18	9.959e1	9.939e1	0.41	n/a	n/a	n/a
S96T002645			DSC Exotherm on Perkin Elmer	Joules/g	101.1	n/a	0.00e+00	0.000e0	0.000e0	0.00	n/a	n/a	n/a
S96T002645			Alpha in Liquid Samples	uCi/mL	113.3	<3.570e-7	<6.58e-07	<6.42E-7	n/a	n/a	n/a	7.710e-7	5.00E+02

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CHAIN OF CUSTODY FORMS

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CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

(1) Shipment Number: 200E-07-TF (2) Sample Number: 3T-96-1 (3) Supervisor: JAMES Sickels

(4) Tank: T-103 (5) Riser: 2 (6) Cask/PIG Shipping Container Serial Number: 6003A

Radiation Survey Data For Cask/PIG:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<.5mr/hr	<.5 mr/hr
Side Dose Rate	<.5 mr/hr	<.5 mr/hr
Bottom Dose Rate	<.5mr/hr	<.5 mr/hr
Smearable Contamination	<20 dpm/100cm² (Alpha)	<20dpm/100cm² (Alpha)
	<1000dpm/100cm² (Beta-Gamma)	<1000dpm/100cm² (Beta-Gamma)
RCT*	(Signature)	RCT* (Signature)

(8) Shipment Description	
A. Work Package Number	WS-96-00114/0
B. Cask/PIG Seal Number	1970
C. Date and Time Sample Removed from Tank	5-1-96 1150
D. Expected Liquid Content	100%
E. Expected Solid Content	Ø %
F. Dose Rate Through Drill String (Auger)/On Contact (GRAB)	80 mr/hr.
G. Expected Sample Length (Auger)/ Volume (GRAB)	120 mL.

(9) INFORMATION (Include statement of laboratory tests to be performed.)

18

(10) Field Comments: Sample was Light Green. Bottle was only about 1/4 Full

(32) Laboratory Comments:

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
T-103	222S	RJ Pekznik for J. Sickels	5-3-96/0950	

(17) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments
R.J. Pekznik	ML Dunnington	5-3-96/0955	

(21) Relinquished By (Sign and PRINT)	(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
ML Dunnington	N LAPIERS	1045 5-3-96	

(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
		Shipment No.	Seal No.	Sample No.
☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldenrod - Tank Farm Operations.

BC-6001-328 (01/96)

WHC-SD-WM-DP-187, REV. 0

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003 ANALYTICAL LAB 222 08:41 05/06/96

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

(1) Shipment Number 200E-07-TF (2) Sample Number 3T-96-2 (3) Supervisor James Sickels

(4) Tank T-103 (5) Riser 2 (6) Cask/PIG Shipping Container Serial Number 60031B

Radiation Survey Data For Cask/PIG:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<.5mr/hr	<.5 mr/hr
Side Dose Rate	<.5mr/hr	<.5 mr/hr
Bottom Dose Rate	<.5mr/hr	<.5 mr/hr
Smearable Contamination	<22dpm/100cm² (Alpha)	220 dpm/100cm² (Alpha)
	<1000dpm/100cm² (Beta-Gamma)	<1000dpm/100cm² (Beta-Gamma)
RCT*	(Signature)	RCT* Charlene Cooper (Signature)

(8) Shipment Description

A. Work Package Number	WS-96-00114/0
B. Cask/PIG Seal Number	1971
C. Date and Time Sample Removed from Tank	5-1-96 1205
D. Expected Liquid Content	100%
E. Expected Solid Content	Ø %
F. Dose Rate Through Drill String (Auger)/On Contact (GRAB)	120 mR/hr
G. Expected Sample Length (Auger)/ Volume (GRAB)	120 mL

(9) INFORMATION (Include statement of laboratory tests to be performed.)

19

(10) Field Comments
Sample was a milky yellow/green color. Bottle was only about 1/3 full

(32) Laboratory Comments

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
T-103	222s	RJ Peaznik for J. Sickels	5-3-96 0950	

(17) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments
RJ Peaznik	ML Dunnington	5-3-96 0955	

(21) Relinquished By (Sign and PRINT)	(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
ML Dunnington	N Lapiers N LAPIERS	1045 5-3-96	

(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
		Shipment No.	Seal No.	Sample No.
☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldenrod - Tank Farm Operations.

BC-6001-326 (01/96)

WHC-SD-WM-DP-187, REV. 0

002 ANALYTICAL LAB 222 08:40 05/06/96

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

(1) Shipment Number: 2000E-07-TF (2) Sample Number: 3T-96-FB (3) Supervisor: James Sickels

(4) Tank: T-103 (5) Riser: 2 (6) Cask/PIG Shipping Container Serial Number: 6003A

Radiation Survey Data For Cask/PIG:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<.5 mr/hr	<.5 mr/hr
Side Dose Rate	<.5 mr/hr	<.5 mr/hr
Bottom Dose Rate	<.5 mr/hr	<.5 mr/hr
Smearable Contamination	<200 dpm/100 cm² (Alpha)	<200 dpm/100 cm² (Alpha)
	<1000 dpm/100 cm² (Beta-Gamma)	<1000 dpm/100 cm² (Beta-Gamma)
RCT*	(Signature)	RCT* (Signature)

(8) Shipment Description	
A. Work Package Number	WS-96-00114/0
B. Cask/PIG Seal Number	1969
C. Date and Time Sample Removed from Tank	5-1-96 1105
D. Expected Liquid Content	100%
E. Expected Solid Content	0%
F. Dose Rate Through Drill String (Auger)/On Contact (GRAB)	<.5 mR/hr
G. Expected Sample Length (Auger)/ Volume (GRAB)	120 mL

(9) INFORMATION (Include statement of laboratory tests to be performed.)

20

(10) Field Comments

Field Blank
Lowered 20' in Riser #2

(32) Laboratory Comments

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
T-103	222S	RJ Ponzwik for J. Sickels	5-3-96 1145	
(17) Relinquished By (Sign and PRINT)		(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments
RJ. Ponzwik		ML Dunnington	5-3-96/1145	
(21) Relinquished By (Sign and PRINT)		(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
ML Dunnington		N LAPIERS	1205 5-3-96	
(25) Relinquished By (Sign and PRINT)		(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
		Shipment No.	Seal No.	Sample No.
☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No	☑ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldenrod - Tank Farm Operations.

BC-6001-326 (01/95)

WHC-SD-WM-DP-187, REV. 0

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001 222 ANALYTICAL LAB 08:39 05/06/96

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DOME SPACE VAPOR FLAMMABILITY DATA SHEETS

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WHC-SD-WM-DP-187, REV. 0

DATA SHEET 3 - IH&S VAPOR SURVEY

Tank No. T-103 Riser No. 2 Glovebag

	BREATHER VENT T-102	3FT SAMPLE RISER	PUMP PIT	20FT DOME SPACE	BREATHING ZONE
O_2	20.9 %	20.9	N/A	20.9	
LFL	0 %	0 %		0 %	
TOC	0 ppm	0 ppm		0 ppm	
NH_3	0 ppm	0 ppm		0 ppm	

Tank No. T-103 Riser No. 7 Glovebag.

	BREATHER/ VENT T-102	SAMPLE RISER	PUMP PIT	DOME SPACE	BREATHING ZONE
O_2	20.9	20.9	N/A	20.9 % ppm	
LFL	0 %	0 %		0 %	
TOC	0 ppm	0 PPM		0 ppm	
NH_3	0 ppm	0 PPM		0 ppm	

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SAMPLE HANDLING

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LABCORE Completed Worklist Report for Worklist# 8516

Analyst: jds **Instrument:** NONE **Book#** N/A

Method: LA-519-151 Rev/Mod E-2

Worklist Comment: T-103 BREAKDOWN. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	SAMPLE	S96T002643		0	@BRKDWN1 DOSERATE	LIQUID	N/A	500	9.99e-002	mrad/hour
1	SAMPLE	S96T002643		0	@BRKDWN1 APPEAR02	LIQUID	N/A	complete		
1	SAMPLE	S96T002643		0	@BRKDWN1 SAMPAMT2	LIQUID	N/A	25		mL
2	SAMPLE	S96T002645		0	@BRKDWN1 DOSERATE	LIQUID	N/A	5	9.99e-002	mrad/hour
2	SAMPLE	S96T002645		0	@BRKDWN1 APPEAR02	LIQUID	N/A	complete		
2	SAMPLE	S96T002645		0	@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		mL
3	SAMPLE	S96T002644		0	@BRKDWN1 DOSERATE	LIQUID	N/A	750	9.99e-002	mrad/hour
3	SAMPLE	S96T002644		0	@BRKDWN1 APPEAR02	LIQUID	N/A	complete		
3	SAMPLE	S96T002644		0	@BRKDWN1 SAMPAMT2	LIQUID	N/A	30		mL

Comments Section:

Comments for sample# S96T002643 **and test** @BRKDWN1.
Appearance: yellow, clear, trace of stringy solids, no organ
ic. gjh

Comments for sample# S96T002645 **and test** @BRKDWN1.
Appearance: yellow, slightly cloudy, trace solids, no organi
c. gjh

Comments for sample# S96T002644 **and test** @BRKDWN1.
Appearance: colorless, clear, no solids, no organic. gjh

These two comments were switched and corrected in the system. See attached that indicates the correct sample numbers for the comments. RDEnk 5/31/96

Final page for worklist# 8516

Analyst Signature **Date** **Analyst Signature** **Date**

David C. Dunha 5-14-96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 8516

Analyst: JDS **Instrument:** NONE _____ **Book #** N/A

Method: LA-519-151 Rev/Mod E-2

Worklist Comment: T-103 BREAKDOWN. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
96000596	T-103 GRAB	1 SAMPLE	S96T002643	0		@BRKDWN1 DOSERATE	LIQUID	N/A	500		mrad/hour
96000596	T-103 GRAB	1 SAMPLE	S96T002643	0		@BRKDWN1 APPEAR02	LIQUID	N/A	complete		
96000596	T-103 GRAB	1 SAMPLE	S96T002643	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	25		mL
96000596	T-103 GRAB	2 SAMPLE	S96T002645	0		@BRKDWN1 DOSERATE	LIQUID	N/A	5		mrad/hour
96000596	T-103 GRAB	2 SAMPLE	S96T002645	0		@BRKDWN1 APPEAR02	LIQUID	N/A	complete		
96000596	T-103 GRAB	2 SAMPLE	S96T002645	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		mL
96000596	T-103 GRAB	3 SAMPLE	S96T002644	0		@BRKDWN1 DOSERATE	LIQUID	N/A	750		mrad/hour
96000596	T-103 GRAB	3 SAMPLE	S96T002644	0		@BRKDWN1 APPEAR02	LIQUID	N/A	complete		
96000596	T-103 GRAB	3 SAMPLE	S96T002644	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	30		mL

Final page for worklist # 8516

JDS 5/9/96 — Analyst Signature, Date

[signature] 5-9-96 — Analyst Signature, Date

Sample #	Color	Clarity	Solids?	Org Layer?	~~Sample Depth~~ RCJ 5/9/96
S96T002643	Yellow	clear	trace of stringy solids.		
S96T002644	Yellow	slightly cloudy	trace	None	
S96T002645	Colorless	clear	None	None	

Data Entry Comments:

Reviewed by [signature]

5-14-96

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

9613447.3020

INORGANIC ANALYSES

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LABCORE Data Entry Template for Worklist# 8557

Analyst: ADP **Instrument:** DSC0 _____ **Book #** 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: T-103 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	LIQUID	28.45	28.76	N/A	Joules/g
96000596	T-103 GRAB	2	SAMPLE	S96T002645	0		DSC-03	LIQUID	N/A	Ø		Joules/g
96000596	T-103 GRAB	3	DUP	S96T002645	0		DSC-03	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 8557

See Attached for Signatures

Analyst Signature **Date**

Analyst Signature **Date**

Verified/Validated by
Blandina Valenzuela
5-17-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 8557

Analyst: ADP **Instrument:** DSC0 _____ **Book #** 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: T-103 DSC RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID			N/A	Joules/g
96000596	T-103 GRAB	2	SAMPLE	S96T002645	0		DSC-01	LIQUID	N/A			Joules/g
96000596	T-103 GRAB	3	DUP	S96T002645	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 8557

[signature] 5-14-96
Analyst Signature **Date**

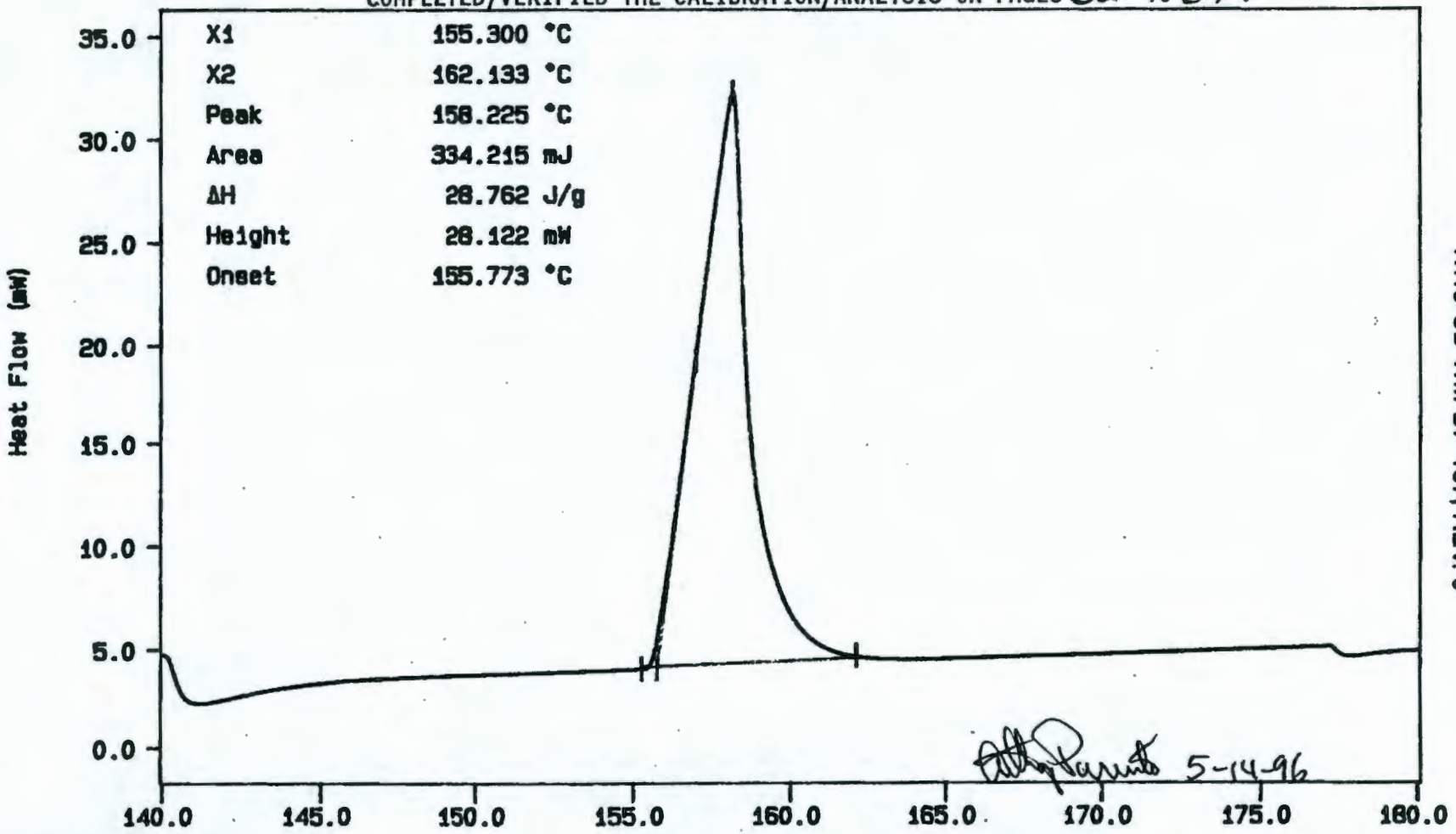
[signature] 5/15/96
Analyst Signature **Date**

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND051402 Tue May 14 17:39:51 1996
Sample Weight: 11.620 mg
12N14-B INDIUM AT 10C\MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 32 TO 34.



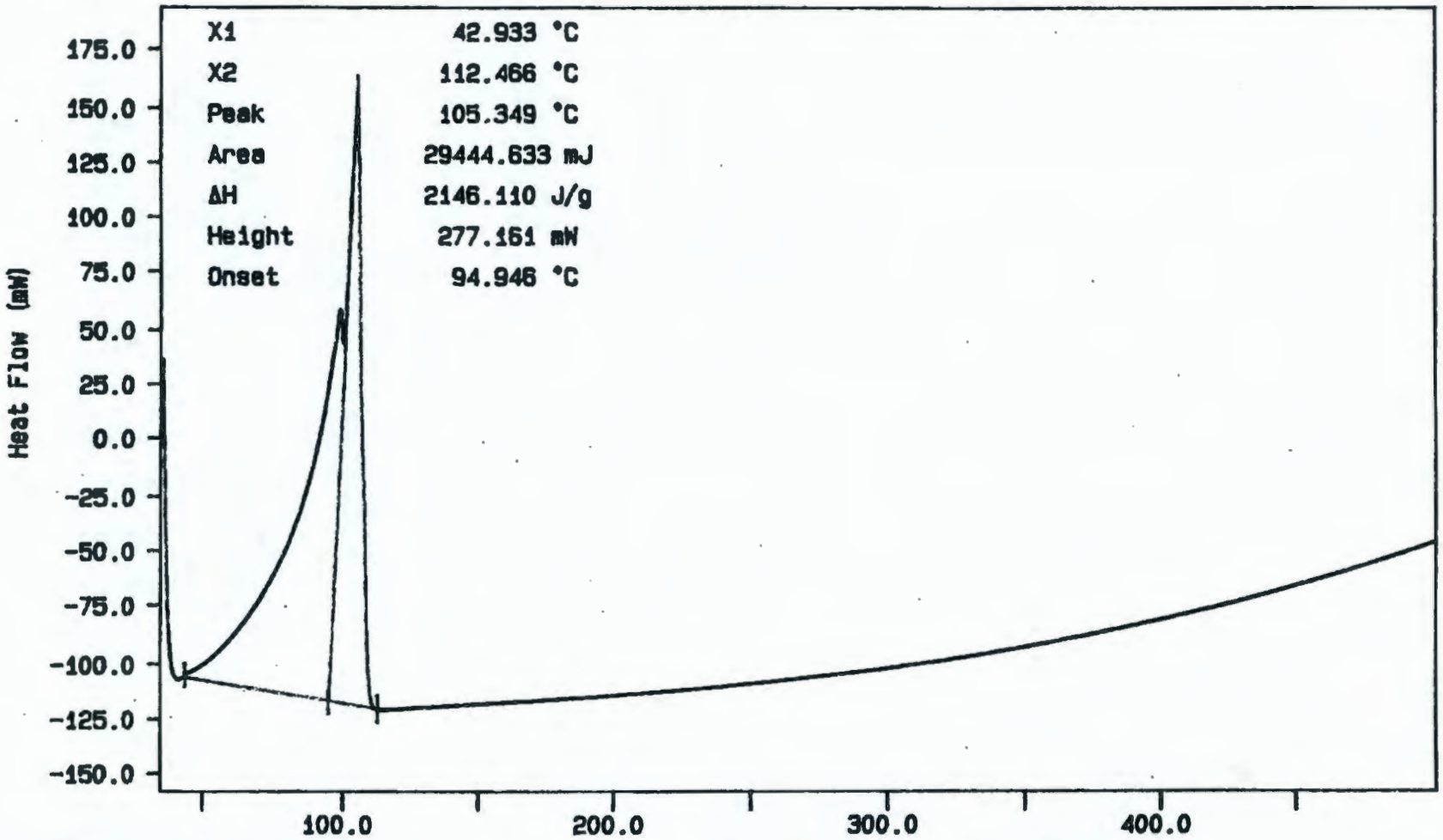
5-14-96

N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue May 14 17:42:58 1996

9613447.3022

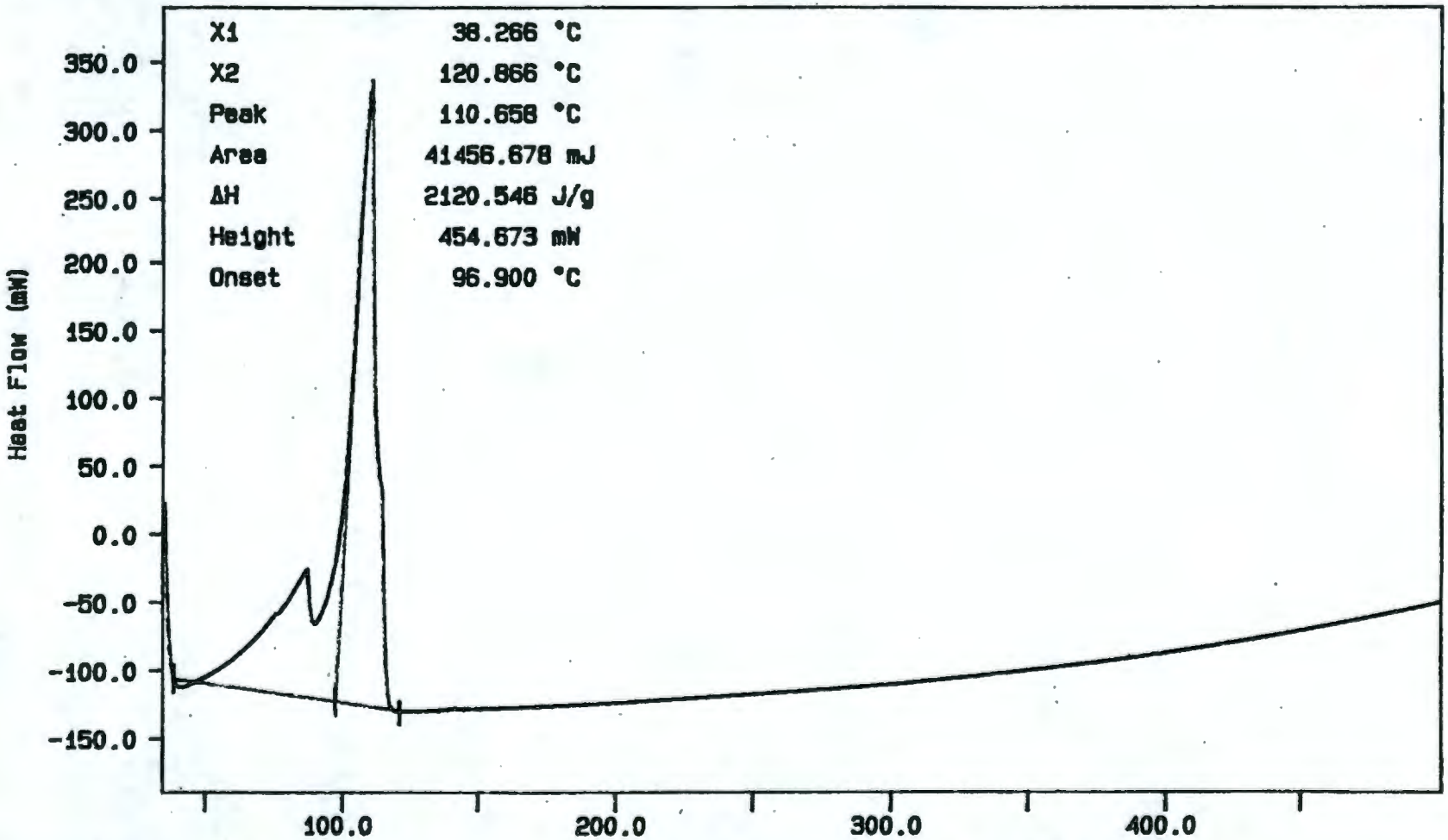
Curve 1: DSC
File info: SAM051406 Tue May 14 19:20:15 1996
Sample Weight: 13.720 mg
S96T004696 SAM
2645



exotherm down, N2 purge gas
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue May 14 20:31:34 1996

Curve 1: DSC
File info: SAM051407 Tue May 14 21:30:08 1996
Sample Weight: 19.550 mg
S96T002645 DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue May 14 21:32:00 1996

9613447.3023

LABCORE Data Entry Template for Worklist# 9034

Analyst: PJM **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: T-103. Run under nitrogen. new

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	LIQUID	28.45	28.77	N/A	Joules/g
96000596	T-103 GRAB	2 SAMPLE	S96T002862	0		DSC-03	LIQUID	N/A	Ø		Joules/g
96000596	T-103 GRAB	3 DUP	S96T002862	0		DSC-03	LIQUID	Ø	Ø	N/A	Joules/g
96000596	T-103 GRAB	4 SAMPLE	S96T002863	0		DSC-03	LIQUID	N/A	Ø		Joules/g
96000596	T-103 GRAB	5 DUP	S96T002863	0		DSC-03	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 9034

See attached for signatures
Analyst Signature **Date** 5-29-96

[signature] 5-30-96
Analyst Signature **Date**

Verified/Validated by
Blandina Valenzuela

S96T002862 produced a very sharp endotherm, after the evaporation of water. This may be due to an organic present in the waste.

Data Entry Comments: S96T002863 produced a sharp endotherm after the evaporation of water which may have been due to an organic present in the waste.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

9613447.3024

LABCORE Data Entry Template for Worklist# 9034

Analyst: RSMcCown **Instrument:** DSC0 _____ **Book #** 12N14B

Method: LA-514-~~113~~ 114 Rev/Mod C1
RSM 5/24/96

Worklist Comment: T-103. Run under nitrogen. new

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID			N/A	Joules/g
96000596	T-103 GRAB	2	SAMPLE	S96T002862	0		DSC-01	LIQUID	N/A			Joules/g
96000596	T-103 GRAB	3	DUP	S96T002862	0		DSC-01	LIQUID			N/A	Joules/g
96000596	T-103 GRAB	4	SAMPLE	S96T002863	0		DSC-01	LIQUID	N/A			Joules/g
96000596	T-103 GRAB	5	DUP	S96T002863	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 9034

RSMcCown 5/24/96
Analyst Signature **Date**

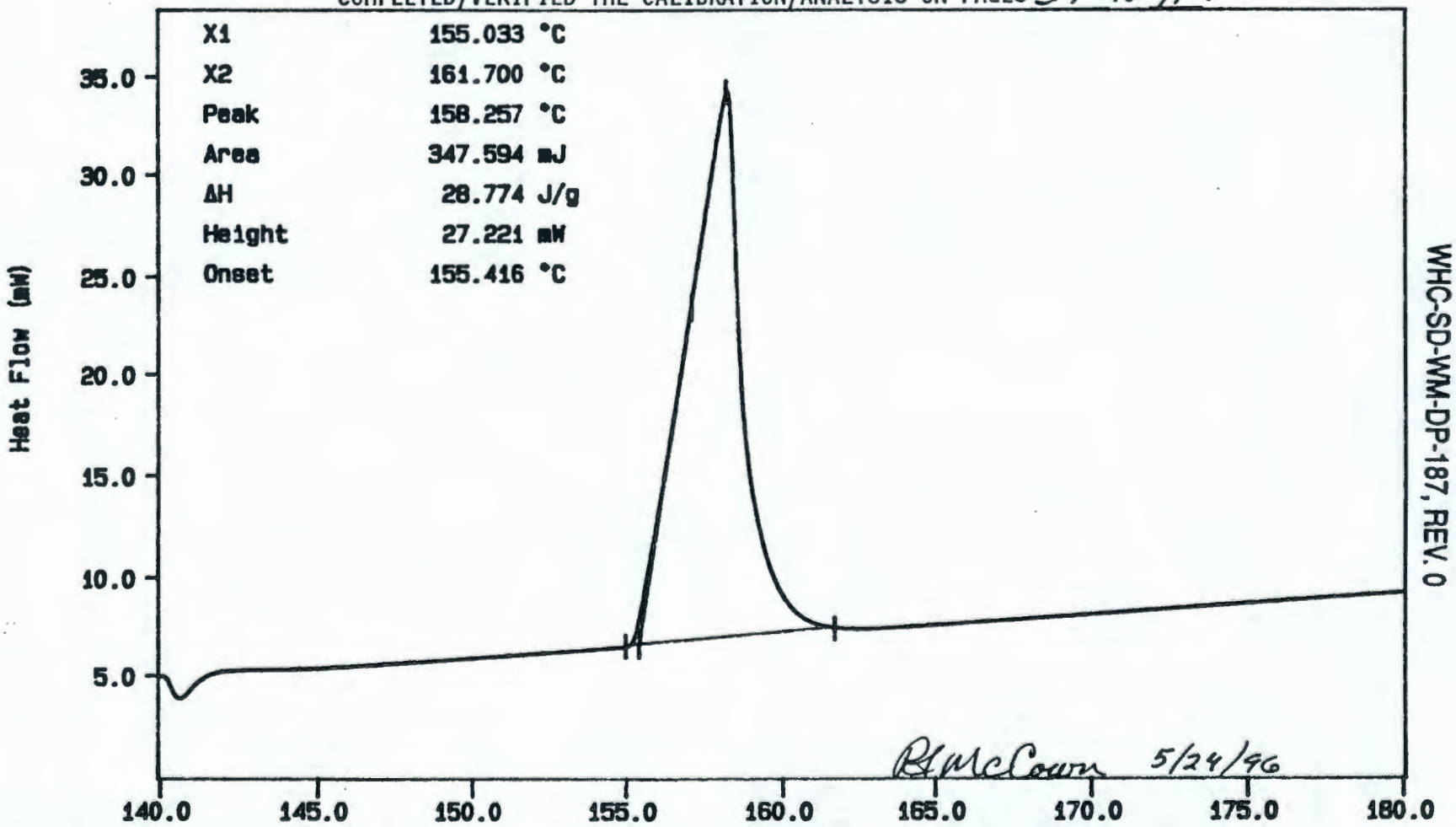
Analyst Signature **Date**

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File info: IND052301 Thu May 23 18:52:05 1996
Sample Weight: 12.080 mg
12N14-B INDIUM AT 10C\MIN

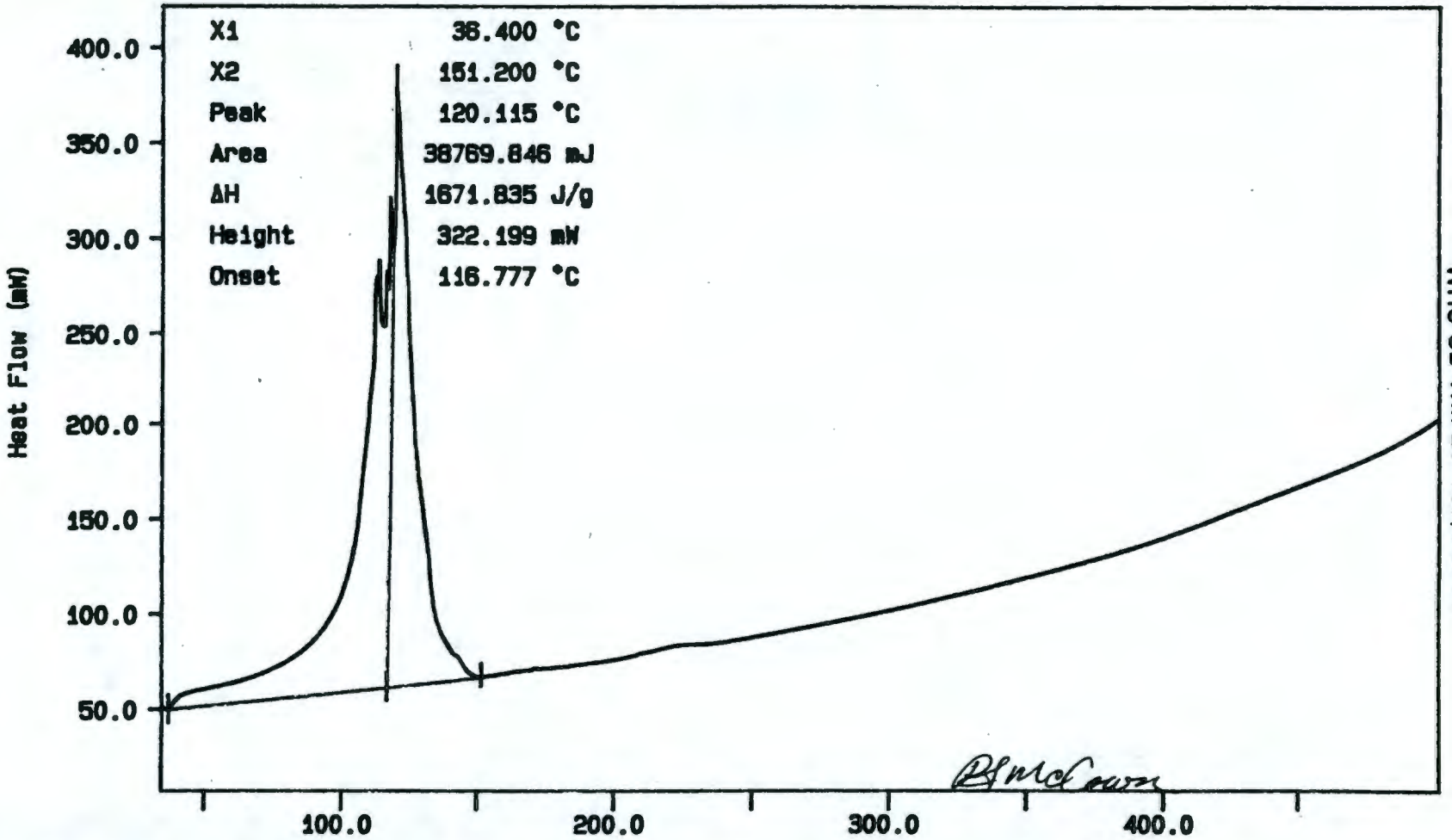
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 37 TO 41.



N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu May 23 18:54:12 1996

Curve 1: DSC
File info: SAM052301 Thu May 23 22:10:08 1996
Sample Weight: 23.190 mg
S96T002862



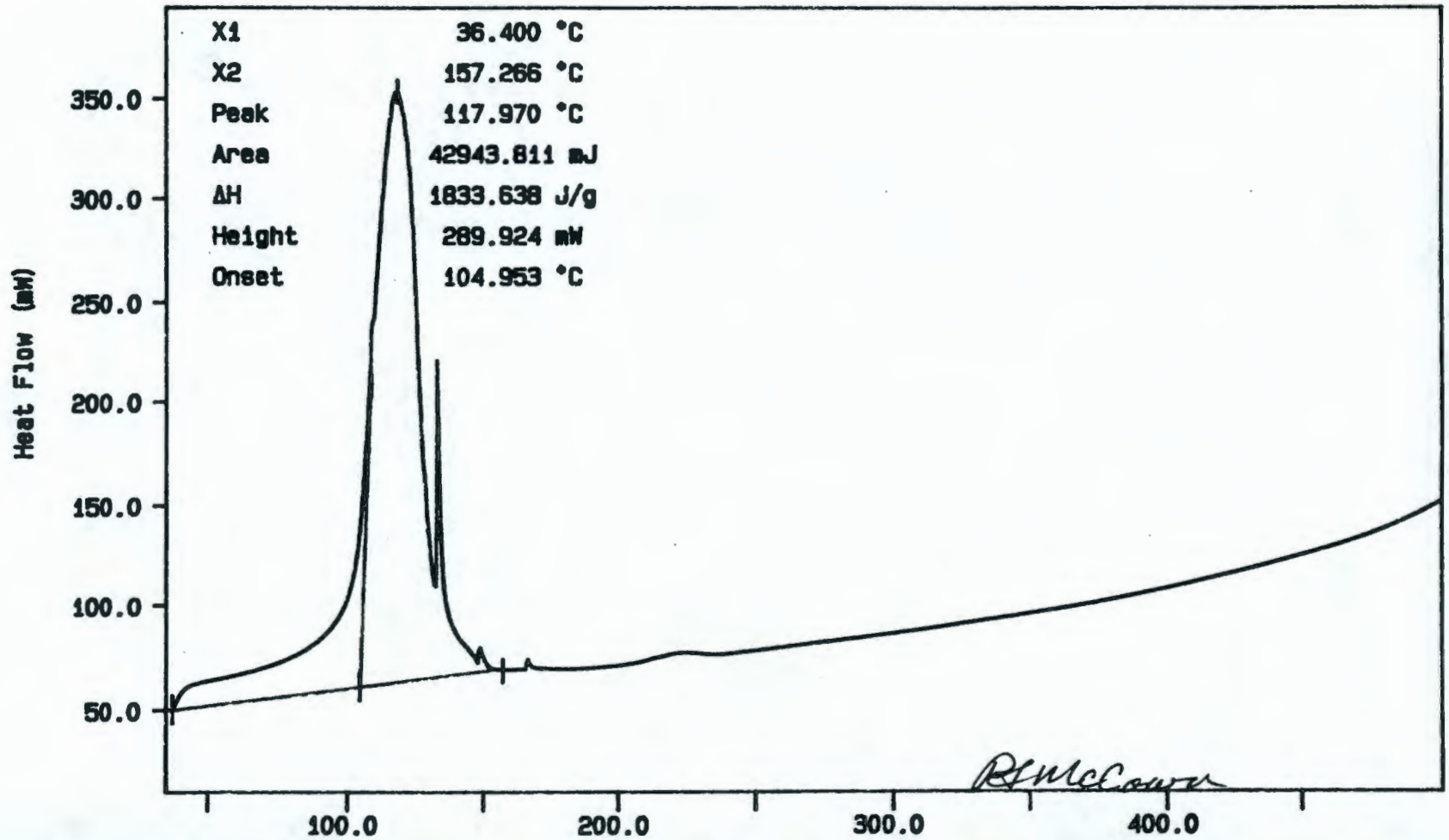
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu May 23 22:11:17 1996

WHC-SD-WM-DP-187, REV. 0

9613447.3025

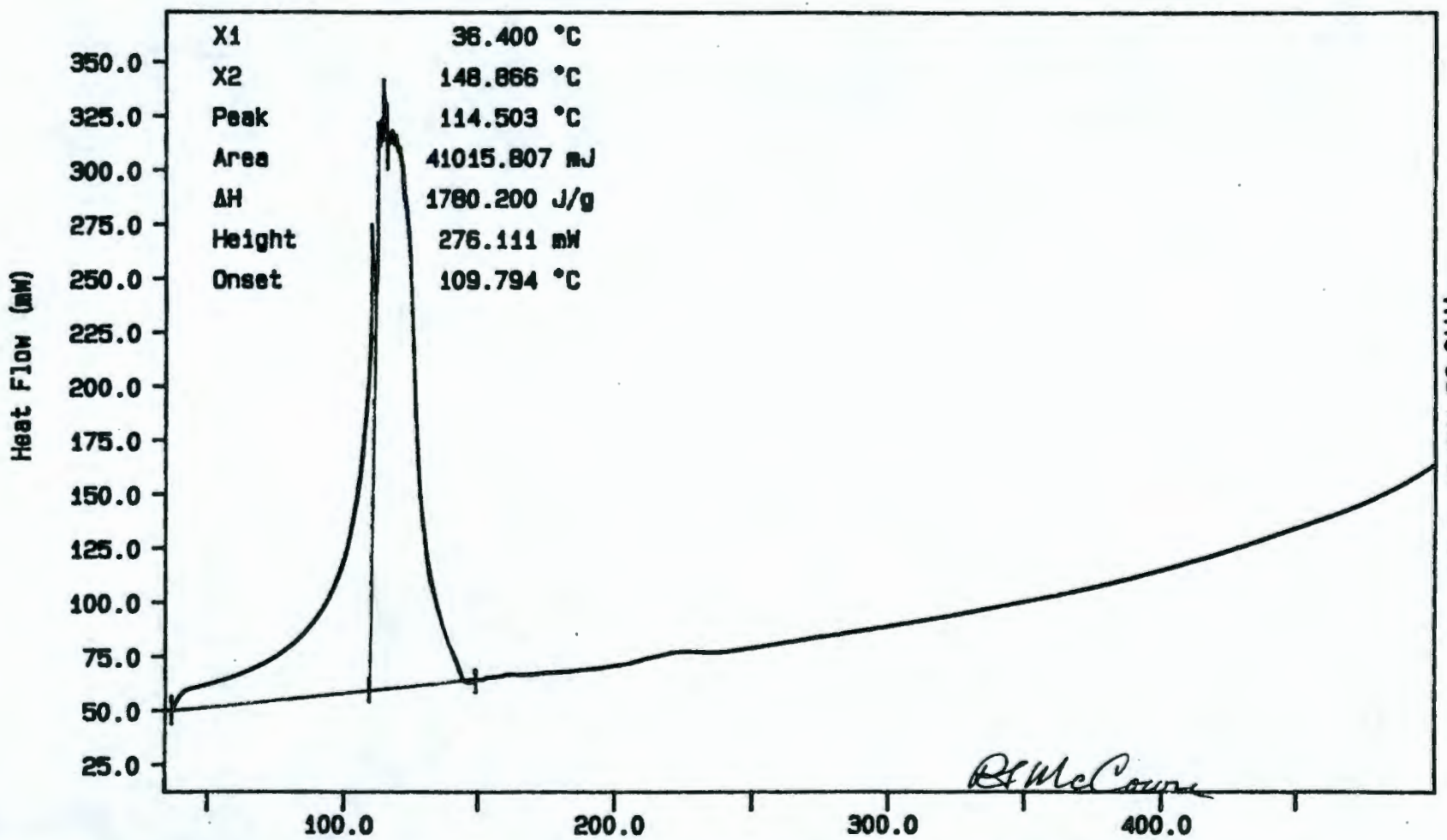
Curve 1: DSC
File info: SAM052401 Fri May 24 01:00:02 1996
Sample Weight: 23.420 mg
S96T002862 DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Fri May 24 01:06:34 1996

Curve 1: DSC
File info: SAM052402 Fri May 24 02:07:50 1996
Sample Weight: 23.040 mg
S96T002863



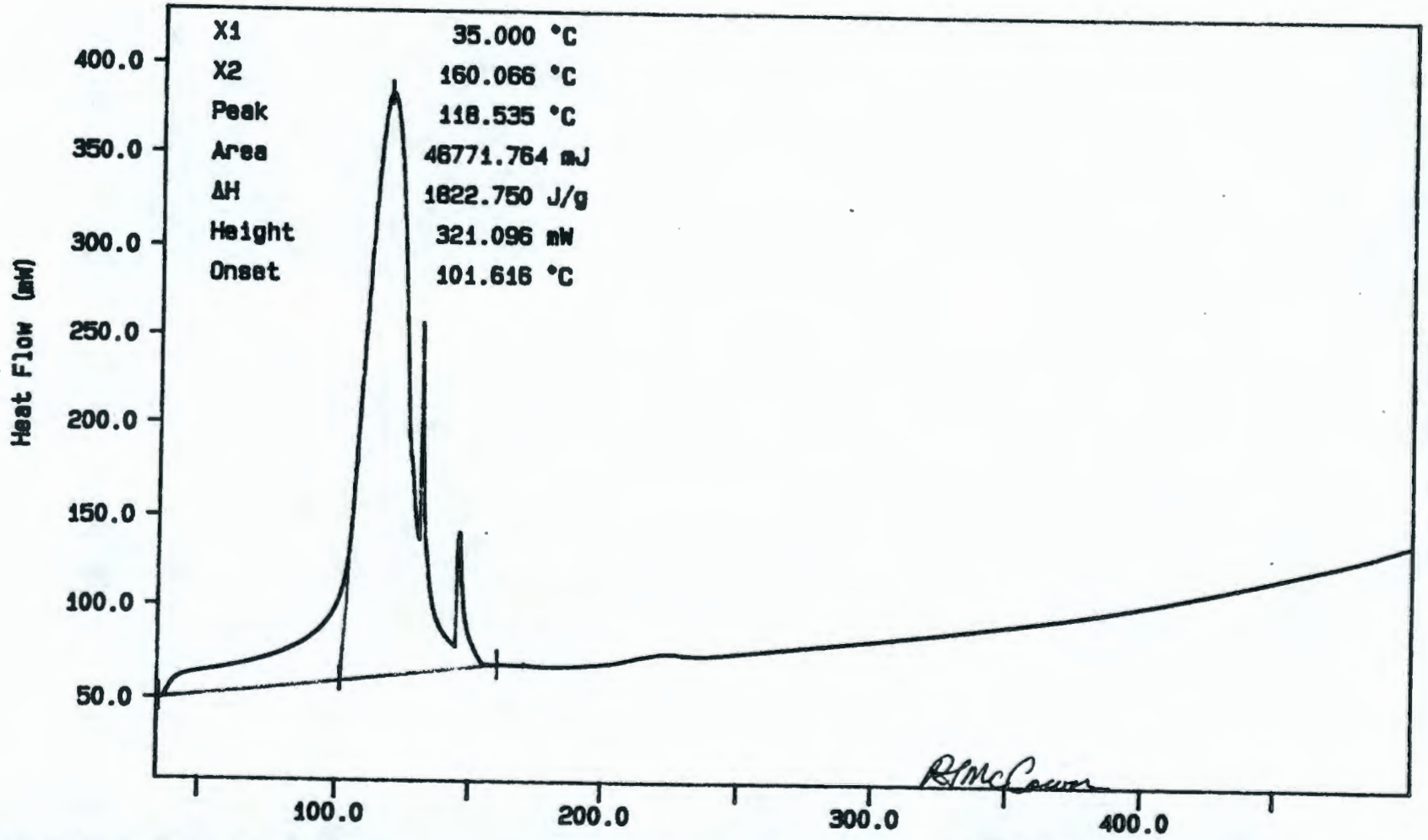
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Fri May 24 02:19:07 1996

WHC-SD-WM-DP-187, REV. 0

9613447.3026

Curve 1: DSC
File info: SAM052403 Fri May 24 03:17:09 1996
Sample Weight: 25.660 mg
S96T002863 DUP



exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Fri May 24 03:28:44 1996

9613447.3027

LABCORE Data Entry Template for Worklist# 8556

Analyst: ADP **Instrument:** TGA03 **Book #** 82N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: T-103 TGA RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	LIQUID	59.2	58.99	N/A	%
96000596	T-103 GRAB	2	SAMPLE	S96T002645	0		TGA-03	LIQUID	N/A	99.18		%
96000596	T-103 GRAB	3	DUP	S96T002645	0		TGA-03	LIQUID	99.18	99.59	N/A	%

Final page for worklist # 8556

See Attached for Signatures
Analyst Signature Date

[signature] 5-13-96
Analyst Signature Date

Validated by H Anastn 5-14-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 8556

Analyst: ADP **Instrument:** TGA0 3 **Book #** 82N8A

Method: LA-560-112 Rev/Mod C-1

Worklist Comment: T-103 TGA RUN UND... N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID			N/A	%
96000596	T-103 GRAB	2	SAMPLE	S96T002645	0		TGA-01	LIQUID	N/A			%
96000596	T-103 GRAB	3	DUP	S96T002645	0		TGA-01	LIQUID			N/A	%

Final page for worklist # 8556

Anthony Pucuntro 5-12-96

Analyst Signature **Date** **Analyst Signature** **Date**

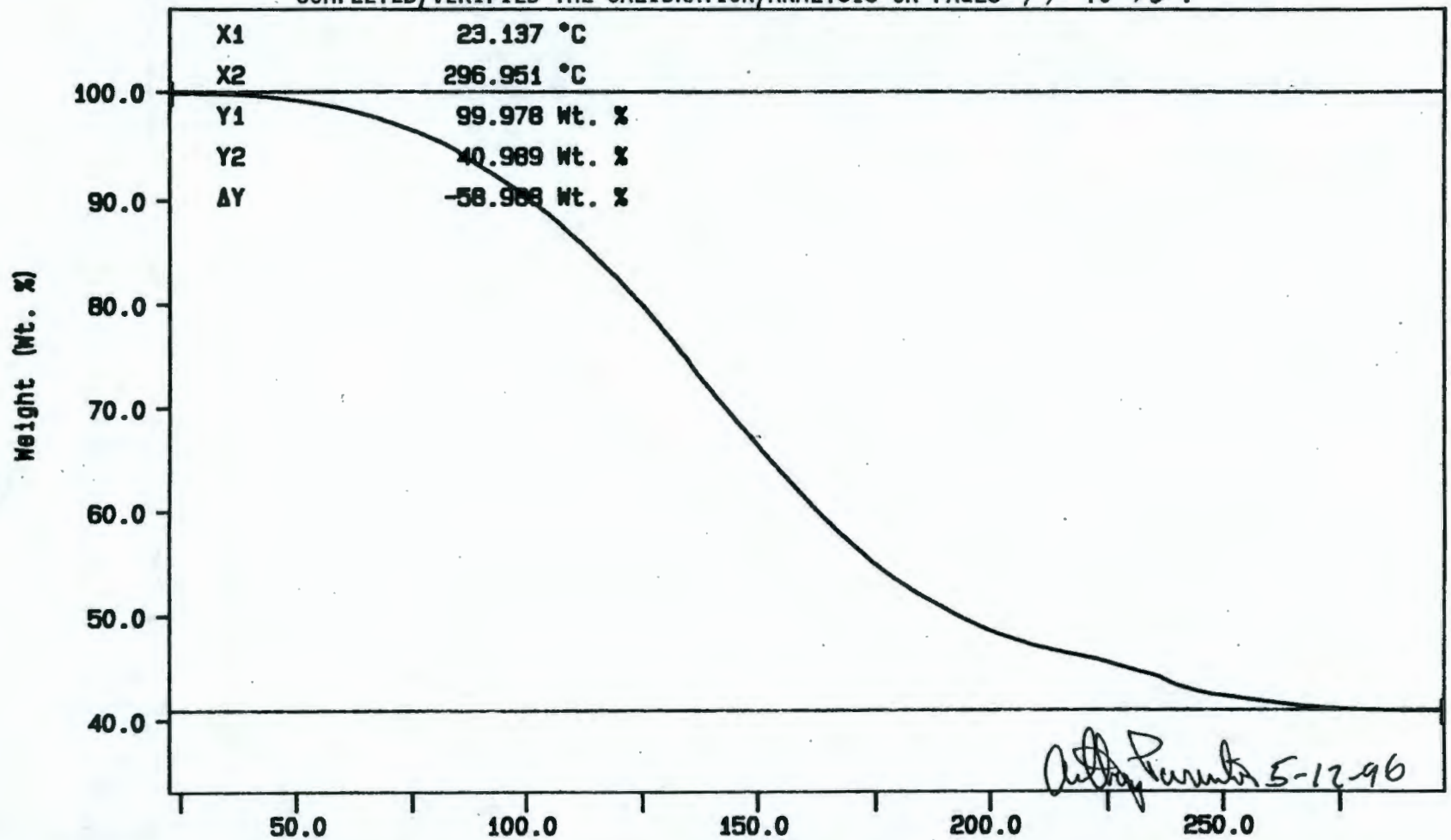
Other Instrument was used.

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TER051201 Sun May 12 06:09:21 1996
Sample Weight: 25.416 mg
TGA STD 82N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 44 TO 46.



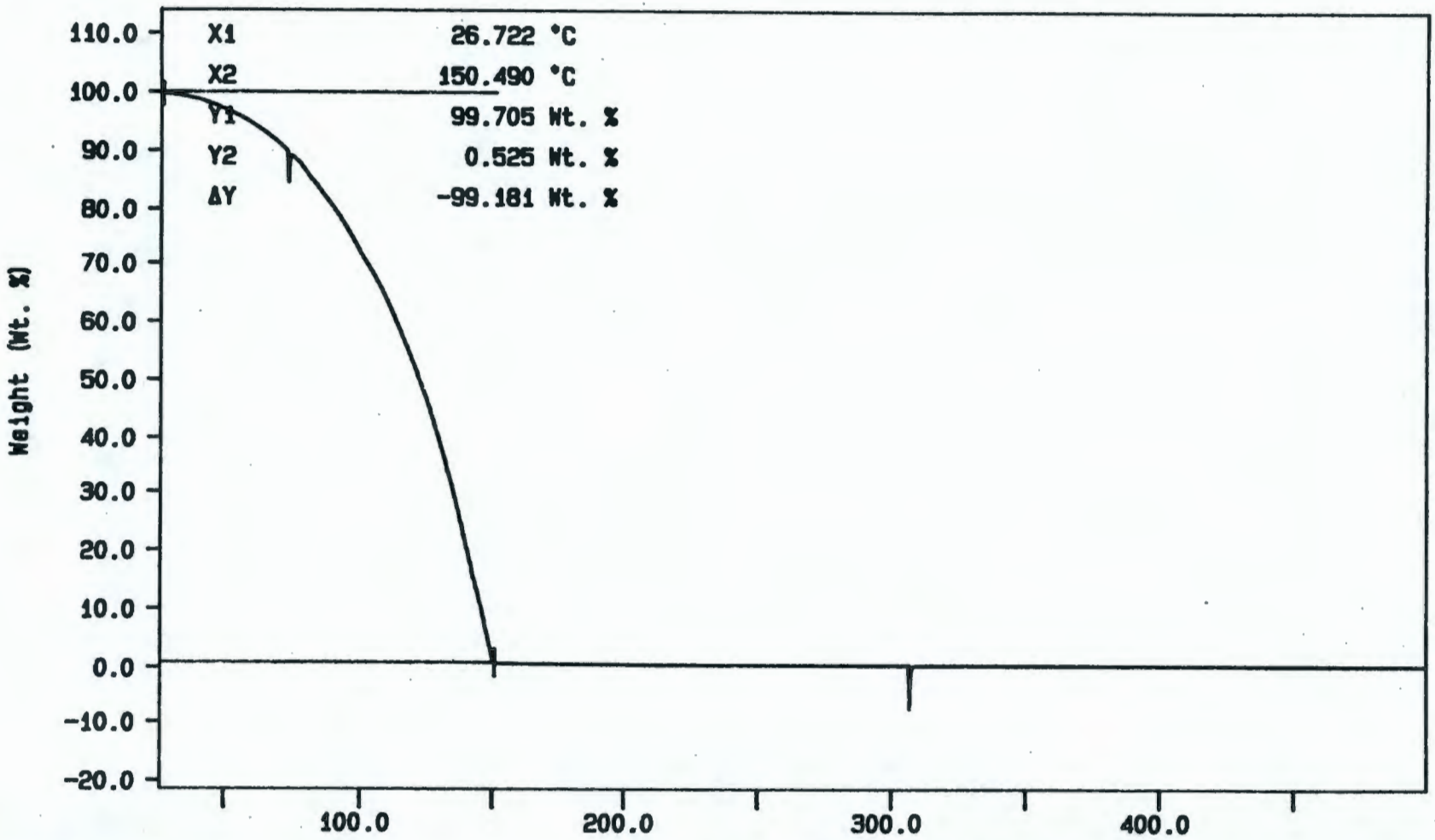
Anthony Purinton 5-12-96

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun May 12 06:12:57 1996

9613447.3028

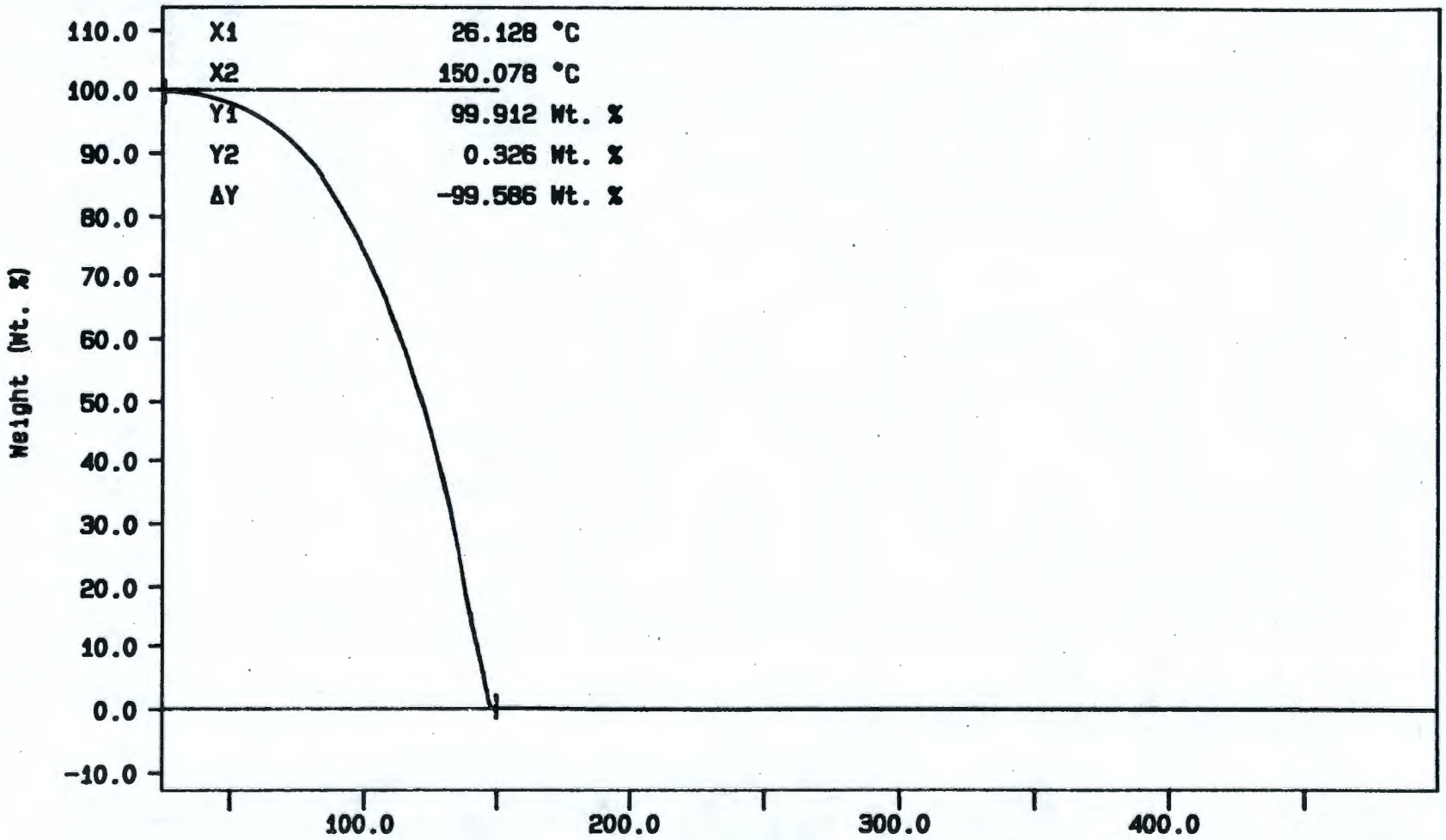
Curve 1: TGA
File info: SAM0501201 Sun May 12 07:25:37 1996
Sample Weight: 15.893 mg
S96T002645 SAM



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun May 12 08:22:48 1996

Curve 1: TGA
File info: SAM051205 Sun May 12 09:19:12 1996
Sample Weight: 13.450 mg
S96T002645 DUP



10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun May 12 09:38:35 1996

9613447.3029

LABCORE Data Entry Template for Worklist# 9035

Analyst: PJM **Instrument:** TGA0 3 **Book #** 82N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: T-103. Run under nitrogen. new

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	59.2	58.64	N/A	%
96000596	T-103 GRAB	2 SAMPLE	S96T002862	0	TGA-03	LIQUID	N/A	67.02		%
96000596	T-103 GRAB	3 DUP	S96T002862	0	TGA-03	LIQUID	67.02	72.85	N/A	%
		TRIP	Nea 5.29.96							
96000596	T-103 GRAB	4 SAMPLE	S96T002863	0	TGA-03	LIQUID	N/A	73.26		%
96000596	T-103 GRAB	5 DUP	S96T002863	0	TGA-03	LIQUID	73.26	73.27	N/A	%

Final page for worklist # 9035

See Attached for Signatures
Analyst Signature **Date**

[signature] 5-30-96
Analyst Signature **Date**

Verified by Blandina Valenzuela
Validated by 5-31-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 9035

Analyst: RL McCown **Instrument:** TGA0 3 **Book #** 82N8A

Method: LA-~~560-112~~ 514-114 Rev/Mod C1 Rev 5/24/96

Worklist Comment: T-103. Run under nitrogen. new

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID			N/A	%
96000596	T-103 GRAB	2 SAMPLE	S96T002862	0	TGA-01	LIQUID	N/A			%
96000596	T-103 GRAB	3 DUP	S96T002862	0	TGA-01	LIQUID			N/A	%
96000596	T-103 GRAB	4 SAMPLE	S96T002863	0	TGA-01	LIQUID	N/A			%
96000596	T-103 GRAB	5 DUP	S96T002863	0	TGA-01	LIQUID			N/A	%

Final page for worklist # 9035

RL McCown 5/24/96
Analyst Signature **Date**

Analyst Signature **Date**

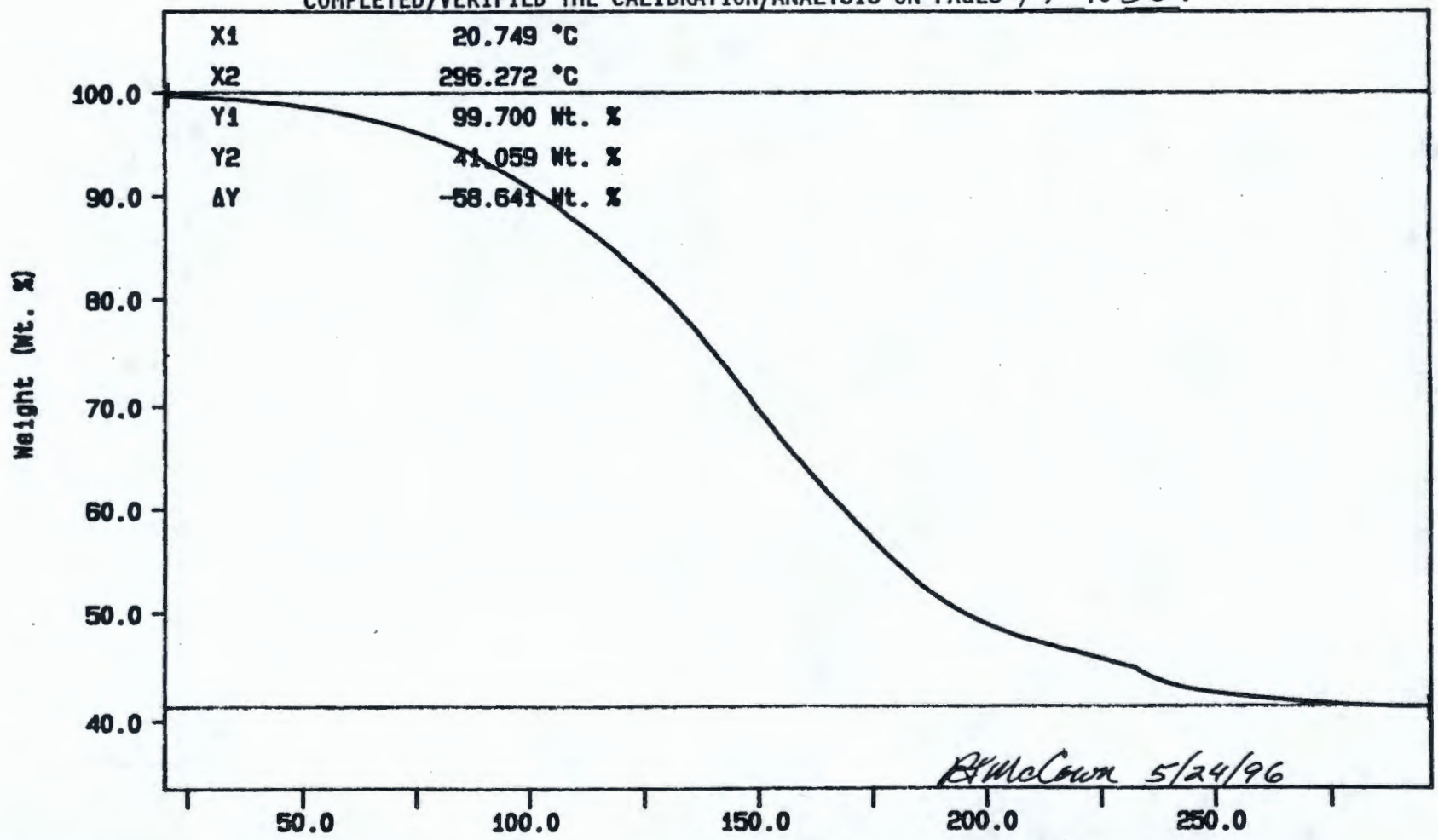
Other Instrument was used.

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TER052302 Thu May 23 20:59:21 1996
Sample Weight: 28.720 mg
TGA STD 82N8-A

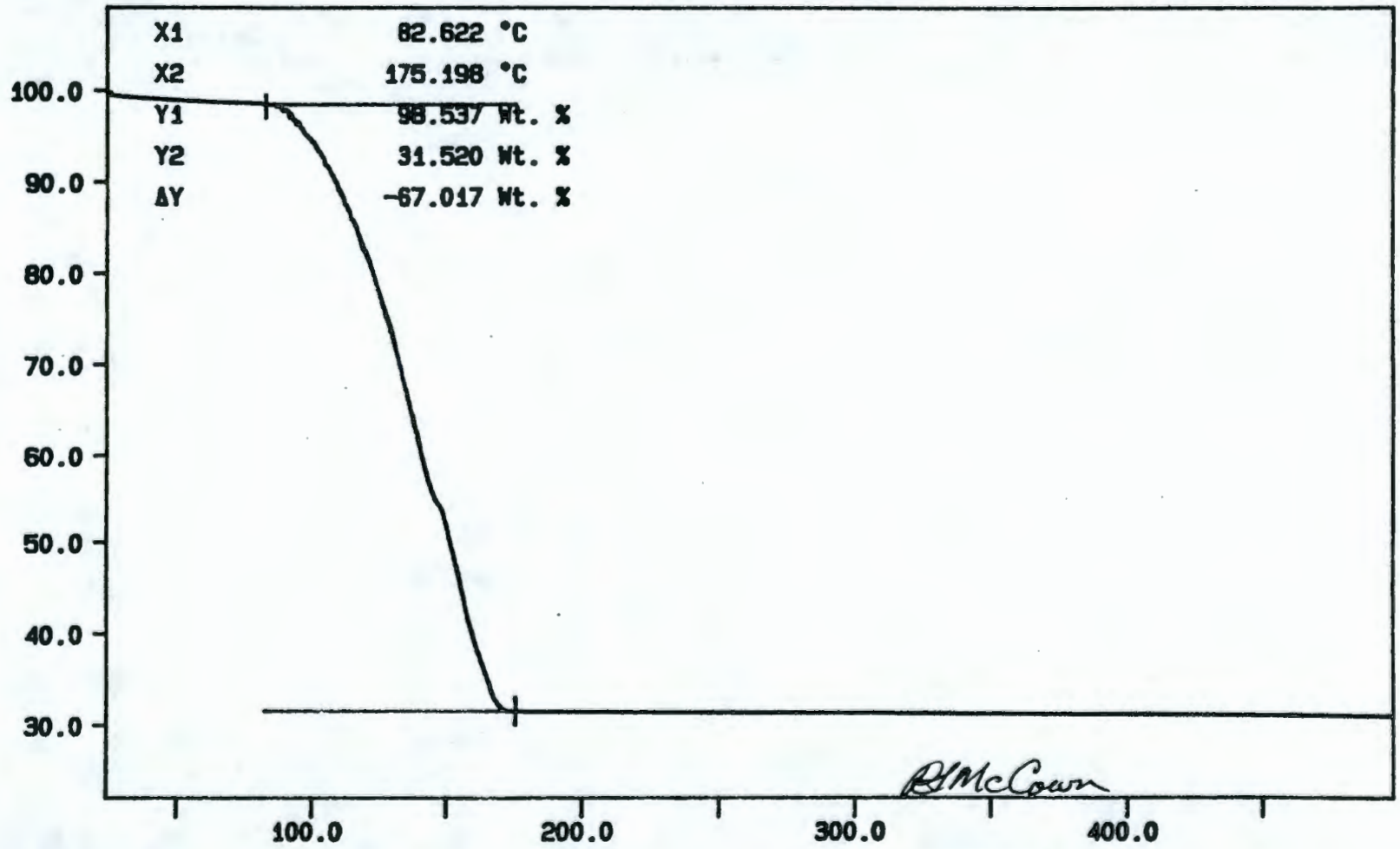
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 49 TO 53.



N2 10C/MIN
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu May 23 21:00:55 1996

Curve 1: TGA
File info: SAM052301 Thu May 23 22:09:58 1996
Sample Weight: 13.533 mg
S96T002862

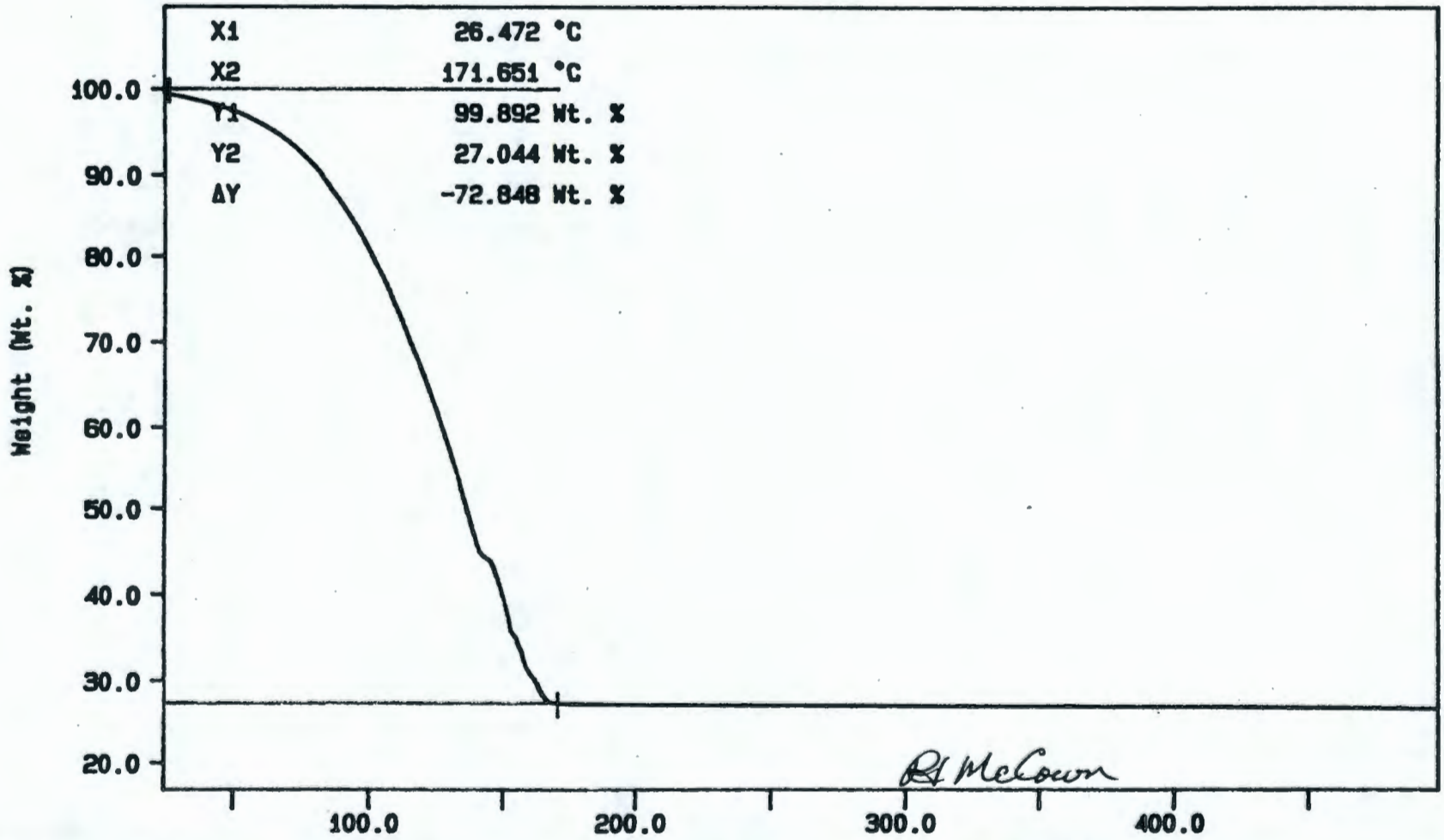


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu May 23 22:24:06 1996

9613447.3031

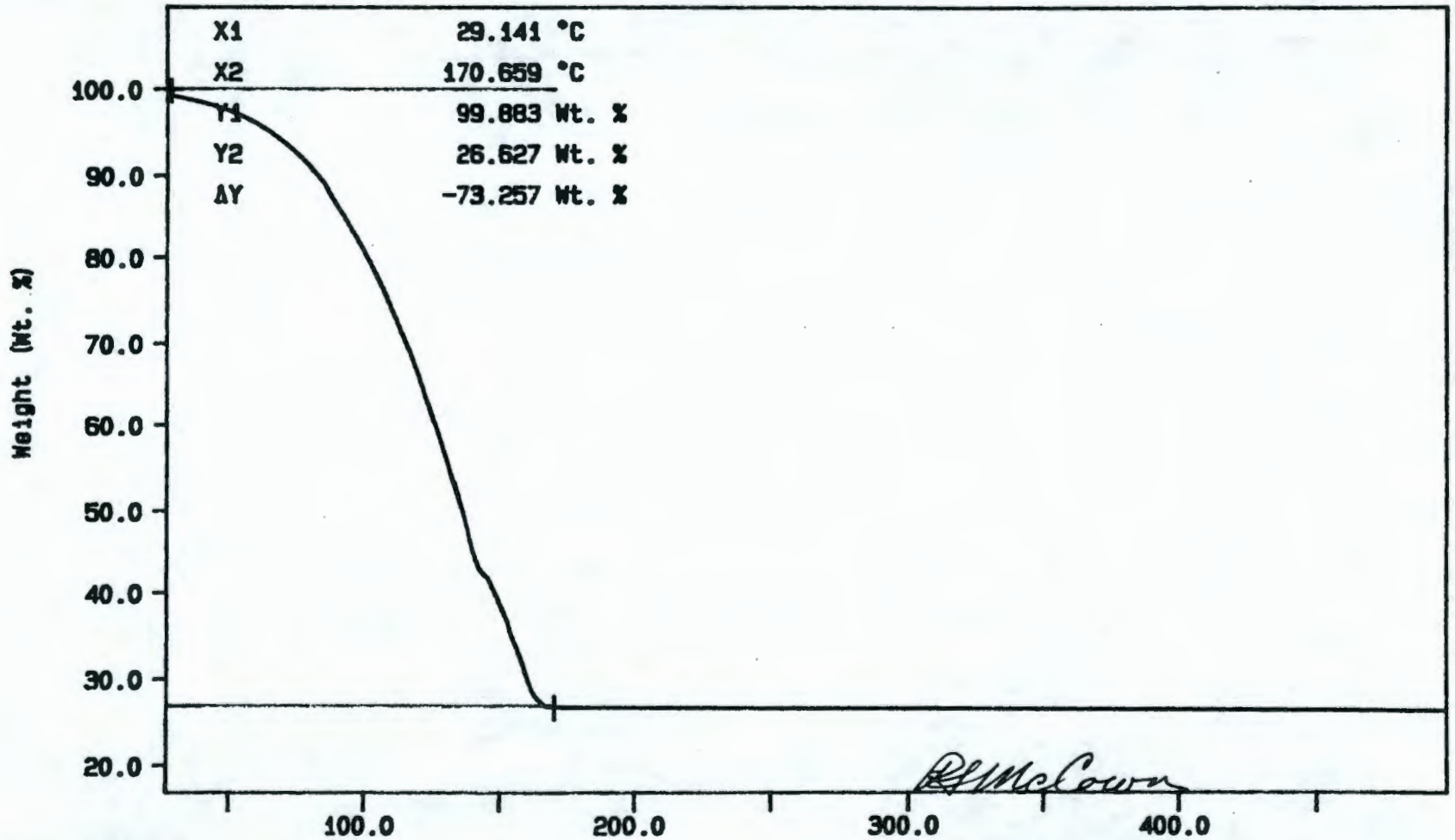
Curve 1: TGA
File info: SAM052302 Thu May 23 23:22:34 1996
Sample Weight: 13.690 mg
S96T002862 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Fri May 24 00:05:45 1996

Curve 1: TGA
File info: SAM052402 Fri May 24 02:07:30 1996
Sample Weight: 14.079 mg
S96T002863

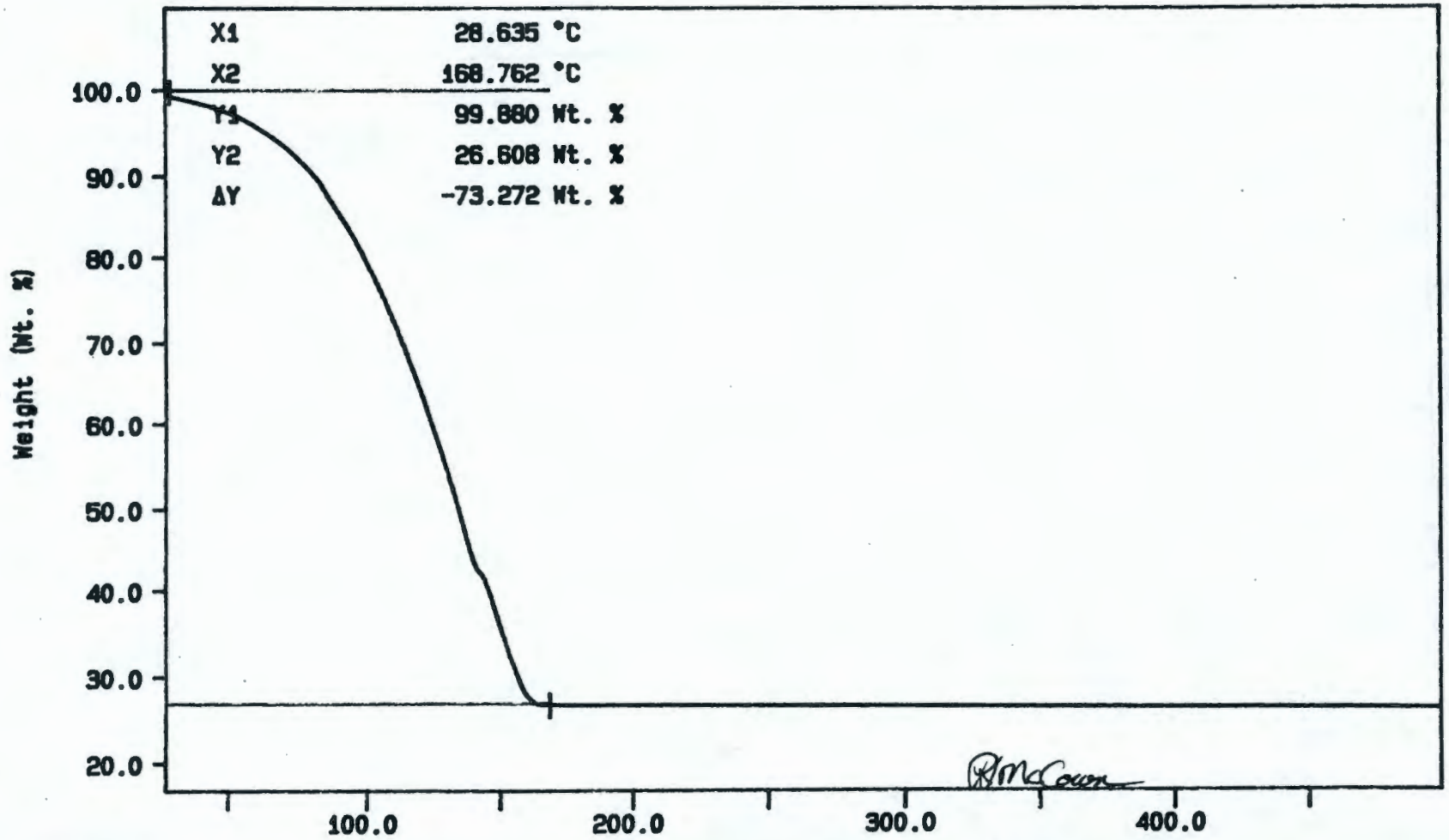


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Fri May 24 02:08:25 1996

9613447.3032

Curve 1: TGA
File info: SAM052403 Fri May 24 03:17:07 1996
Sample Weight: 13.498 mg
S96T002863 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Fri May 24 03:22:54 1996

9613447.3033

RADIOCHEMICAL ANALYSES

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LABCORE Data Entry Template for Worklist# 8559

Analyst: AKL **Instrument:** AB00 16 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2.

Worklist Comment: T-103 ALPHA DETERMINE SS USING LUDLUM. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T002645	0		@ALPHA01	LIQUID	96000596	T-103 GRAB
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002645	0		@ALPHA01	LIQUID		

Final page for worklist # 8559

A Lewis 5/10/96
Analyst Signature Date

MB 5/13/96
Analyst Signature Date
Sharon L Walsh 5-14-96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8559

Analyst: akl **Instrument:** AB16 **Book#** 47B56

Method: LA508-101 **Rev/Mod** D-2

Worklist Comment: T-103 ALPHA DETERMINE SS USING LUDLUM. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@ALPHA01 ALPHA01	LIQUID	1.28E-04	1.45E-4	113.281	% Recovery
1	STD			0	@ALPHA01 ALPHA01E	LIQUID	1.00	4.36E+00	4.360	% Ct. Erro
2	BLNK			0	@ALPHA01 ALPHA01	LIQUID	1	<3.57E-7		uCi/mL
2	BLNK			0	@ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000	uCi/mL
3	BLNK/BKG			0	@ALPHA01 ALPHA01	LIQUID	1.00E+00	1.50E+00	1.500	BLNK/BKG
4	SAMPLE	S96T002645		0	@ALPHA01 ALPHA01	LIQUID	N/A <	6.58E-07	771.0e-009	uCi/mL
4	SAMPLE	S96T002645		0	@ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.0e+000	% Ct. Error
5	DUP	S96T002645		0	@ALPHA01 ALPHA01	LIQUID	<6.58E-7	<6.42E-7		RPD
5	DUP	S96T002645		0	@ALPHA01 ALPHA01E	LIQUID	1.00	1.96E+02	196.000	% Ct. Erro

Final page for worklist# 8559

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 5/17/96 Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

WHC-SD-WM-DP-187, REV. 0

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2057	2026
8559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		68.467	67.433
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004503	Concentration in µCi/L	=	1.47E-01	
Rerun	Replicate Concentration in µCi/L	=	1.44E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4548E-01	

Sample Prep: N/A

Sample #: WL8559

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 05/13/96

Analysis Date: 05/10/96

Analysis Time: 02:00 PM

Sample Point: T-103 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.45E-04	7.71E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.4%	

Analyst:		MCB	Date: 13-May-96
Signature of Chemist:		SLF	Date: 5/17/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	8	1
8559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.167	0.135

Batch Number			
96004503	Blank Concentration in µCi/L		3.57E-04
Rerun	Replicate Concentration in µCi/L	<	2.88E-04
0	Maximum Concentration in µCi/L	<	3.5682E-04

Sample Prep: N/A

Sample #: WL8559

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 05/13/96

Analysis Date: 05/10/96

Analysis Time: 02:00 PM

Sample Point: T-103 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum)	=	< 3.57E-07	DETECTION LEVEL
LESS THAN Value was Determined from Rs.			
RELATIVE COUNTING ERROR		500.0%	7.71E-07 µCi/mL

Analyst:		AKL	Date: 13-May-96
Signature of Chemist:		SLF	Date: 5/17/96

BLANK.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-187, REV. 0

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	7	4
8559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.307	0.179

Batch Number			
96004503	Blank Concentration in µCi/L	<	6.58E-04
Rerun	Replicate Concentration in µCi/L	<	3.83E-04
0	Maximum Concentration in µCi/L	<	6.5782E-04

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002645	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
05/13/96	
Analysis Date	
05/10/96	
Analysis Time	
02:00 PM	
Sample Point	
T-103 GRAB	

ALPHA TOTAL in µCi/mL (Maximum)	=	< 6.58E-07	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR		500.0%	7.71E-07 µCi/mL

Analyst:		AKL	Date: 13-May-96
Signature of Chemist:		SLF	Date: 5/17/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-187, REV. 0

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	12	6
8559	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.300	0.265

Batch Number			
96004503	Blank Concentration in µCi/L		6.42E-04
Rerun	Replicate Concentration in µCi/L	<	5.67E-04
0	Maximum Concentration in µCi/L	<	6.4228E-04

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002645	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
05/13/96	
Analysis Date	
05/10/96	
Analysis Time	
02:00 PM	
Sample Point	
T-103 GRAB	

			DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 6.42E-07	
LESS THAN Value was Determined from Rs.			
RELATIVE COUNTING ERROR		196.0%	7.71E-07 µCi/mL

Analyst:		AKL	Date: 13-May-96
Signature of Chemist:		SLF	Date: 5/17/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9033

Analyst: RK **Instrument:** AB00#18 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T002862	0		@ALPHA01	LIQUID	96000596	T-103 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002862	0		@ALPHA01	LIQUID		
6	SPK	S96T002862	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T002863	0		@ALPHA01	LIQUID	96000596	T-103 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T002863	0		@ALPHA01	LIQUID		

Final page for worklist # 9033

Rob Kim 5/22/96
Analyst Signature **Date**

Sharon Hulsey 5-22-96
Analyst Signature **Date**

M Bi... 5/22/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 9033

Analyst: rwk **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@ALPHA01	ALPHA01	LIQUID	1.28E-04	1.54E-4	120.312	% Recovery
1	STD			0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.28E+00	4.280	% Ct. Erro
2	BLNK			0	@ALPHA01	ALPHA01	LIQUID	1	<4.81E-4		uCi/mL
2	BLNK			0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	uCi/mL
3	BLNK/BKG			0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	5.56E-01	0.556	BLNK/BKG
4	SAMPLE	S96T002862		0	@ALPHA01	ALPHA01	LIQUID	N/A	1.80E-02	116.0e-005	uCi/mL
4	SAMPLE	S96T002862		0	@ALPHA01	ALPHA01E	LIQUID	N/A	1.37E+01	0.0e+000	% Ct. Error
5	DUP	S96T002862		0	@ALPHA01	ALPHA01	LIQUID	1.80E-2	1.95E-2	8.000	RPD
5	DUP	S96T002862		0	@ALPHA01	ALPHA01E	LIQUID	1.00	1.25E+01	12.500	% Ct. Erro
6	SPK	S96T002862		0	@ALPHA01	ALPHA01	LIQUID	3.59E-02	3.88E-02	108.078	% Recovery
7	SAMPLE	S96T002863		0	@ALPHA01	ALPHA01	LIQUID	N/A	2.08E-02	116.0e-005	uCi/mL
7	SAMPLE	S96T002863		0	@ALPHA01	ALPHA01E	LIQUID	N/A	1.25E+01	0.0e+000	% Ct. Error
8	DUP	S96T002863		0	@ALPHA01	ALPHA01	LIQUID	2.08E-2	2.16E-2	3.774	RPD
8	DUP	S96T002863		0	@ALPHA01	ALPHA01E	LIQUID	1.00	1.21E+01	12.100	% Ct. Erro

Final page for worklist# 9033

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 5/28/96 Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

WHC-SD-WM-DP-187, REV. 0

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		18	18
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2125	2189
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.563	72.697
Batch Number	Standard Value in µCi/mL		1.28E-04	
96005070	Concentration in µCi/L	=	1.52E-01	
Rerun	Replicate Concentration in µCi/L	=	1.56E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5401E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL9033	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH2	
Chemist	
SLF	
Analyst	
RWK	
Date Complete	
05/22/96	
Analysis Date	
05/22/96	
Analysis Time	
02:00 AM	
Sample Point	
T-103 GRAB	

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.54E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.3%	1.15E-06 µCi/mL

Analyst:		SLH2	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-187, REV. 0

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4	5
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.221	0.221

Batch Number			
96005070	Blank Concentration in µCi/L	<	4.81E-01
Rerun	Replicate Concentration in µCi/L	<	4.81E-01
0	Maximum Concentration in µCi/L	<	4.8073E-01

Sample Prep: N/A

Sample # WL9033

Instrument Code WB27809

Prepared By SLH2

Chemist SLF

Analyst RWK

Date Complete 05/22/96

Analysis Date 05/22/96

Analysis Time 02:00 AM

Sample Point T-103 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum)	=	< 4.81E-04	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.16E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		RWK	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	227	287
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.297	9.297

Batch Number		
96005070	Blank Concentration in µCi/L	1.58E+01
Rerun	Replicate Concentration in µCi/L	2.02E+01
0	Average Concentration in µCi/L	1.8017E+01

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002862	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH2	
Chemist	
SLF	
Analyst	
RWK	
Date Complete	
05/22/96	
Analysis Date	
05/22/96	
Analysis Time	
02:00 AM	
Sample Point	
T-103 GRAB	

ALPHA TOTAL in µCi/mL (Average) =	1.80E-02	DETECTION LEVEL	
RELATIVE COUNTING ERROR	13.7%	1.16E-03 µCi/mL	

Analyst:	RWK	Date: 22-May-96	
Signature of Chemist:	SLF	Date: 5/28/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	270	284
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.730	9.197

Batch Number	
96005070	Blank Concentration in µCi/L 1.90E+01
Rerun	Replicate Concentration in µCi/L 2.00E+01
0	Average Concentration in µCi/L 1.9465E+01

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002862	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [ ](The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH2	
Chemist	
SLF	ALPHA TOTAL in µCi/mL (Average) = 1.95E-02
Analyst	
RWK	
Date Complete	
05/22/96	RELATIVE COUNTING ERROR 12.5%
Analysis Date	
05/22/96	
Analysis Time	
02:00 AM	
Sample Point	
T-103 GRAB	

DETECTION LEVEL
1.16E-03 µCi/mL

Analyst:		RWK	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-187, REV. 0

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	53381	55091
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005070	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
0	SAMPLE + SPIKE µCi/mL	(S+S)	3.86E+00	3.99E+00
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE		1.8017E-03	
N/A				
Sample #				
S96T002862	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
WB27809	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))			
SLH2	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
RWK				
Date Complete				
05/22/96				
Analysis Date				
05/22/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.88E-02	
02:00 AM	AVG. PERCENT SPIKE RECOVERY	=	108.2%	
Sample Point				
T-103 GRAB				

Analyst:		SLH2	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

WHC-SD-WM-DP-187, REV. 0

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	270	322
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.730	10.463

Batch Number		
96005070	Blank Concentration in µCi/L	1.90E+01
Rerun	Replicate Concentration in µCi/L	2.27E+01
0	Average Concentration in µCi/L	2.0840E+01

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002863	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH2	
Chemist	
SLF	
Analyst	
RWK	
Date Complete	
05/22/96	
Analysis Date	
05/22/96	
Analysis Time	
02:00 AM	
Sample Point	
T-103 GRAB	

ALPHA TOTAL in µCi/mL (Average) =	2.08E-02	DETECTION LEVEL	
RELATIVE COUNTING ERROR	12.5%	1.16E-03 µCi/mL	

Analyst:	RWK	Date: 22-May-96	
Signature of Chemist:	SLF	Date: 5/28/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

WHC-SD-WM-DP-187, REV. 0

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	286	326
9033	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.263	10.597

Batch Number	
96005070	Blank Concentration in µCi/L 2.01E+01
Rerun	Replicate Concentration in µCi/L 2.30E+01
0	Average Concentration in µCi/L 2.1564E+01

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002863	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH2	
Chemist	
SLF	
Analyst	
RWK	
Date Complete	
05/22/96	
Analysis Date	
05/22/96	
Analysis Time	
02:00 AM	
Sample Point	
T-103 GRAB	

ALPHA TOTAL in µCi/mL (Average)	=	2.16E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.1%	1.16E-03 µCi/mL

Analyst:	RWK		Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

9613447.3042

DISTRIBUTION SHEET

To Distribution	From Production Planning & Control	Page 1 of 1
		Date: 06-03-96
Project Title/Work Order **WHC-SD-WM-DP-187, REV. 0** "45-Day Safety Screening Results and Final Report for Tank 241-T-103, Grab Samples 3T-96-1, 3T-96-2 and 3T-96-FB"		EDT NO.: 614794
		ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Pacific Northwest Laboratory			
J. R. Gormsen	K7-28		X
S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Westinghouse Hanford Company			
J. N. Appel	G3-21		X
H. Babad	S7-14	X	
R. A. Esch	T6-06	X	
S. D. Estey	R2-11	Z	
G. D. Forehand	S7-31		X
D. C. Hetzer	S6-31		X
J. E. Hyatt	S3-31	X	
N. W. Kirch	R2-11	X	
M. J. Kupfer	H5-49	X	
J. E. Meacham	S7-15	X	
K. L. Powell	T6-04		X
J. B. Schaffer (SD COV SHT., DST. SHT, ROR)	R2-12		X*
L. W. Shelton	H5-49	X	
T. T. Tran (LATA)	B1-44	X	
J. A. Voogd	H5-03		X
L. R. Webb (SD COV SHT., DST. SHT, ROR)	T6-06		X *
Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
U. S. Department of Energy			
Jim Poppiti 12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874			X

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